

**REMARKS****I. Status of the Claims**

Claims 1-24 are pending in this application. No claim has been amended in this response. The following claims have been withdrawn from consideration: claims 8 and 9 as being drawn to non-elected species of deposition entities; claims 11-15 as being drawn to a non-elected device; and claims 16-24 as being directed to a non-elected apparatus. Claims 1-7 and 10 have been examined and rejected. Applicants traverse these rejections for the following reasons.

**II. Rejection Under 35 U.S.C. §103(a)****A. *Vachon***

The Examiner rejected claims 1-7 and 10 under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 6,340,421 to Vachon et al. ("Vachon") for the reasons set forth in pages 2-3 of the Office Action. The Examiner states that "[t]he difference between Vachon and the above claims is the recited concentration range." *Id.* However, the Examiner alleged that "[t]he subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified Vachon's teachings because optimization through routine experimentation has been held to be obvious." *Id.* at 3. Applicants respectfully disagree.

Vachon is directed to a method for dispensing a solution containing a electroactive species from a microdispenser so as to form a hanging drop of the solution. As noted by the Examiner, the method of Vachon comprises **contacting** the

electrode with the hanging drop of the solution, wherein the **electrode is electrically coupled with the microdispenser** so as to form an electrochemical cell, and applying a potential to the electrochemical cell. Vachon at col. 1, lines 43-50.

In contrast, the claimed invention is directed to, *inter alia*, a method for preparing a solution or suspension at a predetermined concentration in the range of about 10  $\mu\text{g/ml}$  to about 1  $\text{mg/ml}$ , wherein the solution is located **in a vicinity between a pair of electrodes**, wherein the pair of electrodes are in a superposed relation **at a predetermined distance** between one another. In the claimed method, a potential is applied across two electrodes sufficient to cause migration of the deposition entity to one of the electrodes.

In other words, the claimed invention differs from Vachon in at least two ways. First, as recognized by the Examiner, Vachon clearly does not teach or suggest a solution or suspension at a predetermined concentration in the range of about 10  $\mu\text{g/ml}$  to about 1  $\text{mg/ml}$ .

In addition, Vachon does not teach that the solution is located in a vicinity between a pair of electrodes. Rather, Vachon comprises **contacting** the electrode with the hanging drop of the solution, unlike the claimed invention, which is directed to applying a potential across two electrodes to have the solution located there-between to migrate to one of the electrodes.

The foregoing differences belie the Examiner's conclusions of obviousness based on optimization through routine experimentation. In other words, because the methods are so fundamentally different, e.g., one being based on an applied potential between electrodes (the claimed invention), and the other on directly contacting a

hanging droplet with an electrode (Vachon), the mere optimization of Vachon's method would not have led to or made obvious the claimed invention.

For at least these reasons, this rejection is improper and should be withdrawn.

**B. *Trau et al.***

The Examiner rejected claims 1-7 and 10 under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 5,855,753 to Trau et al ("Trau") for the reasons set forth in pages 3-4 of the Office Action. The Examiner again recognizes that "[t]he difference between Trau and the above claims is the recited concentration range." *Id.* at 4. However, the Examiner alleged that "[t]he subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified Trau's teachings because optimization through routine experimentation has been held to be obvious." *Id.* Applicants respectfully disagree.

Trau is directed to a method for electrophoretically depositing particles onto an electrode, and electrohydrodynamically assembling the particles into crystalline structures. Col. 2, lines 58-62. Trau makes it clear that the disclosed method creates a current flowing through a solution to cause identically charged electrophoretically deposited colloidal particles to attract each other over very large distances. Col. 3, lines 45-50. According to Trau, modulating this "lateral attraction" between particles causes the reversible formation of two-dimensional fluid and crystalline colloidal states on the electrode surface. *Id.* at lines 53-57. Such a method is neither remotely similar to the claimed invention, nor would it have made the claimed invention obvious, especially through "routine optimization," as suggested by the Examiner. In fact, Trau makes it clear that the lateral attraction between deposited particles was "extremely surprising."

The lateral attraction force between electrophoretically deposited particles at the surface of the anode electrode is **extremely surprising** given the strong repulsion expected from purely electrostatic considerations. All of these particles are similarly charged and contain a diffuse ion cloud, which is polarized in the presence of an electric field. As these particles approach each other on the surface of the anode electrode, electrostatic repulsion should be experienced both from monopole and dipole interactions. Instead, the observed attraction between these particles is clearly not the result of a purely electrostatic interaction.

See, Trau at paragraph bridging cols 5-6.

Nothing in Trau describes the claimed invention, and certainly not to the extent that it would have made the claimed invention obvious "through routine experimentation." To establish a *prima facie* case of obviousness under 35 U.S.C. § 103, the Examiner must consider the invention as "a whole without the benefit of hindsight, and the claims must be considered in their entirety." *Rockwell Int'l Corp. v. U.S.*, 147 F.3d 1358, 1364, 47 U.S.P.Q.2d 1027, 1031 (Fed. Cir. 1998). Moreover, the prior art reference relied upon in a rejection must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. See *W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1550, 220 U.S.P.Q. 303, 311 (Fed. Cir. 1983); see also *Graham*, 383 U.S. at 17, 148 U.S.P.Q. at 467.

In addition, the Supreme Court mandates that "[t]o facilitate review, this analysis [of whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue] should be made explicit." *KSR*, 127 S. Ct. at 1741, 82 U.S.P.Q.2d at 1396 (citing *In re Kahn*, 441 F.3d 977, 988, 78 U.S.P.Q.2d 1329, 1336 (Fed. Cir. 2006)) ("[R]jections on obviousness grounds cannot be sustained

by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness”).

In the present case, a review of Trau is its entirety indicates that there exists no teaching in this reference showing, for example, that the claimed concentration of the deposition entity is a result-effective variable. “A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation.” M.P.E.P. §2144.05 I.B., citing *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977).

Here, the Examiner has not, and can not, point to any disclosure in Trau that shows, for example, that the claimed concentration of the deposition entity is a result-effective variable. This is especially true considering Trau is directed to a method for electrophoretically depositing particles onto an electrode, and electrohydrodynamically assembling the particles into crystalline structures. No rationale underpinning has been set forth that supports the conclusion that the concentration of any deposition entity that may be disclosed in Trau should be modified. Moreover, the Examiner has presented nothing of record even alleging the concentration range originally recited in claim 2, and now recited in independent claim 1. Rather, the Examiner relies solely on the unsupported, conclusory statement that it would have been obvious to modify Trau’s teachings - a reliance that is expressly prohibited by the holding in *KSR*.

Accordingly, Applicants respectfully submit that the rejection under 35 U.S.C. §103(a) is in error, and request that it be withdrawn.

### III. Conclusion

In view of the foregoing, Applicants respectfully request that the Examiner withdraw all the rejections of the pending claims under 35 U.S.C. §103(a), and allow the claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 501946.

Respectfully submitted,  
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